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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/410,626	10/01/1999	ATSUKO OHARA	21.1936/GMG	7139

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EXAMINER

DASTOURI, MEHRDAD

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 01/29/2004

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/410,626

Applicant(s)

OHARA ET AL.

Examiner

Mehrdad Dastouri

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38-53 and 55-62 is/are rejected.
- 7) ☒ Claim(s) 54 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10. 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 30, 2003 has been entered.

Response to amendment

2. Applicants' amendment filed October 30, 2003 has been entered and made of record.
3. Applicants' arguments regarding rejection of Claims 2-9, 16-22, 24-27, and 29-37 have been fully considered but they are not persuasive. Applicants generally referred to some parts of the teachings of the prior arts of record and explained different claimed invention limitations. There are not any specific arguments that which claim limitations are not taught by the prior arts of record.

Claim Objections

4. Claims are objected to because of the following informalities:

In Line 18 of Claims 39, 40, 52, "(A)" should be deleted.

In Line 6 of Claims 44, 45 and 46, "patters" should be corrected to "patterns".

In Line 2 of Claims 44 and 45, "in the case" should be corrected to ", in the case".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 38-43, 48, 51 and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeda et al (U.S. 5,228,100).

Regarding Claim 38, Takeda et al disclose a table image processing device comprising:

a table image processing device comprising:

a unit inputting an image comprising a sheet image including ruled lines (Figures 1-4, Image Input Device 93, Ruled Line 100; Column 7, Lines 58-65; Column 8, Lines 51-68, Column 9, Lines 1-9);

a unit extracting a line by extracting a longitudinal line and a lateral line from the input image (Figures 2-4, 8, 11A and 11B; Column 8, Lines 26-68; Column 10, Lines 26-36);

a unit finding a potential match of a round corner region extracting an oblique line which commences from a terminal of a line found by the line extracting unit, and finding a potential match of the round corner region based on the oblique line (Figures 15-19, 20A-20F, 21-23; Column 13, Lines 4-68, Column 14, Lines 1-35);

a unit extracting a cell finding cells containing the potential match of the round corner found by the potential match of the round corner region finding unit (Figures 15-19, 20A-20F, 21-23; Column 13, Lines 4-68, Column 14, Lines 1-51); and

a unit deciding a round corner part deciding a round corner based on the cells found by the cell extracting unit (Figures 20A-20F, 21-23; Column 13, Lines 4-68, , Column 14, Lines 1-68, Column 15, Lines 1-55), wherein the unit finding the potential match of the round corner region extracts the oblique element by extracting a first oblique element starting a terminal of a longitudinal line, and a second oblique element commencing from a terminal of a lateral line (Figures 20A-20F, 21-23; Column 14, Lines 51-67, Column 15, Lines 1-55. As depicted in Figures 20A-20F and 21, first oblique line is extracted from the regions surrounded by lines H_1 and H_2 , and vertical lines V_2 and V_3 , and second oblique line is extracted from the region surrounded by horizontal lines H_2 and H_3 , and vertical lines V_1 and V_2 .), and

the unit finding a potential match of around corner region decides, in a case that the first oblique element and the second oblique element overlap, the part as the potential match of the round corner (Figures 71, 72, 73A-B and 74A-B, Column 28, Lines 43-68, Column 29, Lines 1-57; Figures 20A-20F, 21-23; Column 14, Lines 51-67, Column 15, Lines 1-55. As depicted in Figures 20A-20F and 21, first oblique line is extracted from the regions surrounded by lines H_1 and H_2 , and vertical lines V_2 and V_3 , and second oblique line is extracted from the region surrounded by horizontal lines H_2 and H_3 , and vertical lines V_1 and V_2 overlap each other.); and

the unit deciding a round corner part decides the part as the round corner in case that the pixel density at a corner of a cell extracted by the means for extracting the cell changes in a fixed order (Figures 20A-20F; Column 14, Lines 51-67, Column 15, Lines 1-4).

With regards to Claims 39, 51 and 52, arguments analogous to those presented for Claim 38, are applicable to Claims 39, 51 and 52. Takeda et al further disclose the process that the part is the potential match of the round corner region in case that the distance between the first and second oblique line found by calculating the distance is within a fixed value (Figures 20A-20F, 89A-F; Column 14, Lines 51-67, Column 15, Lines 1-55. The fixed distance is the distance between horizontal lines H_1 , H_2 and H_3 , or vertical lines V_1 , V_2 and V_3 .)

With regards to Claim 40, arguments analogous to those presented for Claim 39, are applicable to Claim 40. Takeda et al further disclose the process that the part is the potential match of the round corner region in case that any another oblique element does not exist near an identified oblique element and there is a pattern showing a line feature at the terminal of the identified oblique line (Figures 20A-20F, 21-23; Column 14, Lines 51-67, Column 15, Lines 1-55. As depicted in Figures 20A-20F, there is not any another oblique element, and there is a pattern showing a line feature at the terminal of the identified oblique line.).

Regarding Claim 41, Takeda et al further disclose a table image processing device in Claim 38: wherein the unit deciding a round corner part, after the process of finding the round corner part based on pixel density change, finds whether the

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regulation of the ruled line arrangement exists or not, and when the regulation exists, decides another corner of the input image as a round corner (Figures 13-19 and 20C-20F; Column 12, Line 23 through Column 15, Line 55).

With regards to Claims 42 and 43, arguments analogous to those presented for Claim 41 are applicable to Claims 42 and 43.

Regarding Claim 48, Takeda et al further disclose a table image processing device in Claim 38: wherein the oblique element is decomposed to a longitudinal and a lateral direction, and each element is supposed as ruled lines of the longitudinal and the lateral direction (Figures 89C and 89D).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 53, 55, 57, 59 and 61 are rejected under 35 U.S.C. 102(e) as being anticipated by Katsuyama et al (U.S. 6,035,061).

Regarding Claim 53, Katsuyama et al disclose a table image processing device comprising:

a unit extracting a line extracting longitudinal lines and lateral lines from an input image (Figure 5, Step S27);

a unit deciding region recognizing character deciding region recognizing character (Figures 3-6; Column 8, Lines 23-67, Column 9, Lines 1-44);

a unit finding a ruled line by using the longitudinal lines and the lateral lines extracted from the unit extracting lines as the potential match of the ruled line and for deciding whether the potential match of the ruled line is a ruled line or not, and the unit extracting cells based on the results decided by the unit finding ruled line (Figures 11-13; Column 10, Lines 58-67, Column 11, Lines 1-14);

wherein the unit finding ruled line finds whether the identified potential match of the ruled line is a ruled line or not based on roughness of the potential match of the ruled line and any one of threshold of different plural thresholds corresponding to another image pattern extracted from the input image pattern existing around the identified potential match of the ruled line (Figures 11-13; Column 10, Lines 58-67, Column 11, Lines 1-14), and

the unit finding ruled line comprises at least one unit of a pixel density finding unit (A) and a ruled line width finding unit (B);

the pixel density finding unit (A) finding comprising a first threshold fixed in advance and a second threshold fixed in advance higher than the first threshold

the pixel density finding unit, corresponding to the pixel density of the image pattern existing around the identified potential match of the ruled line, uses the first threshold in a case that the pixel density of the image pattern other than the identified potential match of ruled line is high, and uses the second threshold in a case that the pixel density of the image pattern other than the identified potential match of ruled line is

low (Figures 7-12; Column 9, Lines 31-67, Column 10, Lines 1-34; Column 11, Lines 4-9; Column 12, Lines 31-37).

Regarding Claim 55, Katsuyama et al disclose the table image processing device in Claim 53, wherein the ruled line width finding unit uses the potential match of the ruled line extending to same direction as the identified potential match of ruled line and adjacent or connected to the identified potential match of ruled line as the image pattern existing around the identified potential match of ruled line (Figure 11; Column 10, Lines 58-67, Column 11, Lines 1-3).

With regards to Claim 57, arguments analogous to those presented for Claim 53 are applicable to claim 57. Katsuyama further disclose a ruled line width finding unit (B) comprising the first threshold fixed in advance or the second threshold fixed in advance higher than the first threshold (Figures 7-12; Column 9, Lines 31-67, Column 10, Lines 1-34), and

the ruled line width finding unit, corresponding to the width of the image pattern existing around the identified potential match of the ruled line, uses the first threshold in a case that the width of the image pattern is wide, and uses the second threshold in a case that the width of the image pattern is narrow (Figures 7-12; Column 9, Lines 31-67, Column 10, Lines 1-67, Column 11, Lines 1-43; Column 22, Lines 1-67, Column 23, Lines 1-30).

With regards to Claims 59 and 61, arguments analogous to those presented for Claim 53 are applicable to Claims 59 and 61.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 44-47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al (U.S. 5,228,100).

Regarding Claim 44, Takeda et al further disclose a table image processing device in Claim 38: wherein the unit deciding a round corner decides whether a round corner is found or not (Figures 20A-20F). Takeda et al do not explicitly disclose in the case that the round corner is not found in the round corner finding process based on the pixel density change, compares patterns made by connecting the longitudinal lines and lateral lines with the round corner part of the input image, and decides the part as the round corner part, when the patterns are matched each other.

This limitation is a conventional pattern matching well known in the art (Official Notice).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Takeda et al invention to compare patterns made by connecting the longitudinal lines and lateral lines with the round corner part of the input image, and decides the part as the round corner part, when the patterns are matched each other because it is a standard methodology routinely implemented in the art.

With regards to Claims 45 and 46, arguments analogous to those presented for Claim 44 are applicable to Claims 45 and 46.

With regards to Claim 47, arguments analogous to those presented for Claims 41 and 44 are applicable to Claim 47.

Regarding Claim 49, Takeda et al further disclose a table image processing device in Claim 44: wherein the unit deciding a round corner decides, in case that a pattern of nth order function generated between the terminals of lines extracted by the unit extracting line matches the round corner part of the input image, the part as the round corner (Figures 20A-20F; Column 14, Lines 15-68, Column 15, Lines 1-55).

11. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al (U.S. 5,228,100) in view of Tsuchiya et al (U.S. 5,857,034).

Takeda et al do not explicitly disclose further limitations of Claim 50.

Tsuchiya et al disclose a method for processing character data comprising:

a unit finding regions recognizing character finding the character recognition region by neglecting the round corner part decided by the means for deciding round corner in the cells containing the round corner (Figure 19; Column 10 , Lines 56-67, Column 11, Lines 1-7).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Takeda et al invention according to the teachings of Tsuchiya et al to implement further limitations of Claim 50 because it will expand the versatility of table image processing system and will prohibit overlapping the character data and table image ruled lines.

12. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuyama et al (U.S. 6,035,061).

Regarding Claim 56, Katsuyama et al disclose the table image processing device in Claim 53, wherein the ruled line width finding unit decides the width of the potential match of the ruled line to be wide in a case that the width of potential match of ruled line is wide in a case that the width of potential match of ruled line is greater than the n times of the width of the image pattern existing around the identified potential match of ruled line (Column 22, Lines 10-12, $n=4$), and the width of potential match of ruled line is narrow in a case that the width of potential match of ruled line is less than the $1/n$ times of the width of the image pattern existing around the identified potential match of ruled line (Figure 40; Column 21, Lines 33-67, Column 22, Lines 1-65, in particular Items (r) and [#12]).

Katsuyama et al disclose the value of 0.4 for narrow ruled line in lieu of the value $\frac{1}{4}$.

Assigning a value for the width of the ruled lines (0.25 or 0.4) is the designer choice and is in the same order of magnitude.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Katsuyama et al invention to consider a value of $1/n$ ($1/4$) for the width of the narrow ruled lines because it is a reasonable value for narrow ruled line's width and a logical selection in the order of magnitude considered in the art for practical purposes.

13. Claims 58, 60 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over combined teachings of Takeda et al (U.S. 5,228,100) and Katsuyama et al (U.S. 6,035,061).

With regards to Claims 58, 60 and 62, arguments analogous to those presented for Claims 40 and 53 are applicable to Claims 58, 60 and 62.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Katsuyama et al table image processing device, method and memory medium according to the teachings of Takeda et al to identify round corners in addition to the ruled lines in a table image because it will enhance table image processing to identify a plurality of different linear and curved ruled lines.

Allowable Subject Matter

14. Claim 54 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 54 of the instant invention recites the table image processing device in Claim 53, wherein the unit finding ruled line comprising:

when the potential match of the ruled line is a longitudinal line, an image pattern of same length as the potential match of the ruled line existing right and left of the potential match of the ruled line within a fixed range is used as the image pattern existing around the potential match of the ruled line,

when the potential match of the ruled line is a lateral line, an image pattern of same length as the potential match of the ruled line existing up and under of the

potential match of the ruled line within a fixed range is used as the image pattern existing around the identified potential match of the ruled line

Contact Information

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703) 305-2438. The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9143 for regular communications and (703) 872-9143 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center Customer Service Office whose telephone number is (703) 306-0377.

**MEHRDAD DASTOURI
PRIMARY EXAMINER**

Mehrdad Dastouri

Mehrdad Dastouri
Primary Examiner
Group Art Unit 2623
January 24, 2004